COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Tidewater Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

BAE Systems Norfolk Ship Repair
Norfolk, Virginia
Permit No. TRO60246

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, BAE Systems Norfolk Ship Repair, has applied for a renewal permit for its Title V Operating Permit for its medical facility. The Department of Environmental Quality has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____ Date: September 24, 2007

Air Permit Manager:_____ Date: September 24, 2007

Regional Director:_____ Date: September 24, 2007

FACILITY INFORMATION

Permittee

BAE Systems Norfolk Ship Repair
750 West Berkley Avenue
Norfolk, Virginia 23523

Facility

BAE Systems Norfolk Ship Repair
750 West Berkley Aveneu
Norfolk, Virginia 23523

County-Plant Identification No. 51-710-00006

SOURCE DESCRIPTION

NAICS 336611 - Shipbuilding and Repairing. This facility provides comprehensive services for the repair and maintenance of marine vessels and their subsystems.

COMPLIANCE STATUS

The facility is inspected once each calendar year. The last inspection (partial compliance inspection) was conducted on May 25, 2007. The facility was deemed to be in compliance at the time of that inspection.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

The emissions units at this facility consist of the following :

Emission Unit Id.	Stack Id.	Emission Unit Description	Size/Rated Capacity	Pollution Control Device (PCD) Description and ID	Pollutant Controlled	Applicable Permit Date
003	2	Keeler, industrial boiler, residual No. 6 oil and slop oil (manufactured pre-1972)	32 mm Btu/hr	N/A	N/A	N/A
007-A	6	Stone Johnson, industrial boiler, No. 1 or 2 fuel oil (manufactured 1987)	20 mm Btu/hr	N/A	N/A	October 16, 1997
007-B	6	Stone Johnson, industrial boiler, natural gas (manufactured 1987)	20 mm Btu/hr	N/A	N/A	October 16, 1997
008	10	York Shipley, industrial boiler, No. 1 or 2 fuel oil (manufactured 1981)	12 mm Btu/hr	N/A	N/A	December 16, 1981
009-A	7	Stone Johnson, industrial boiler, No. 1 or 2 fuel oil (manufactured 1987)	31.5 mm Btu/hr	N/A	N/A	May 7, 2001
009-B	7	Stone Johnson, industrial boiler, natural gas (manufactured 1987)	31.5 mm Btu/hr	N/A	N/A	May 7, 2001
010-A	8	Cleaver Brooks, industrial boiler, No. 1 or 2 fuel oil (manufactured 1991)	33.4 mm Btu/hr	N/A	N/A	January 6, 2000
010-B	8	Cleaver Brooks, industrial boiler, natural gas (manufactured 1991)	33.4 mm Btu/hr	N/A	N/A	January 6, 2000
006	5	Painting (surface coating using airless sprayers) (pre-1972)		N/A	N/A	N/A
020	N/A	Abrasive blasting, surface preparation (pre-1972)		N/A	N/A	N/A
022	11	Carpenter shop, sawmill and woodworking (pre-1972)		Cyclone (C1)	PM, PM10	N/A
024	13	Shot blast cabinet (inside paint shop)	200 lb steel shot per hour	Baghouse (B1)	PM, PM10	N/A
023	12	Loading rack, slop oil	300 gallons per hour	N/A	N/A	N/A

TEG1		Titan Emergency Diesel Generator #1	970 kw/1,300 hp	N/A	N/A	N/A
ODEG2		Old Dominion Emergency Diesel Generator #2	500 kw/670 hp	N/A	N/A	N/A
FEG2		Facility Emergency Generator #2	750 kw/1,005 hp	N/A	N/A	N/a

*The Size/Rated capacity is provided for informational purposes only, and is not an applicable requirement.

EMISSIONS INVENTORY

Emissions are summarized in the following table:

Calendar Year 2006 Actual Emissions

	Criteria Pollutant Emission in Tons/Year				
	VOC	CO	SO_2	PM_{10}	NO_x
Total	41.3	12.4	61.7	51.0	46.0

EMISSION UNIT APPLICABLE REQUIREMENTS - Fuel Burning Equipment

This section applies to Emission Unit 003.

Limitations

The following Virginia Administrative Codes have specific emission requirements have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-900	Existing Source Standard for Particulate Matter
9 VAC 5-40-930	Existing Source Standard for Sulfur Dioxide
9 VAC 5-40-940	Existing Source Standard for Visible Emissions

The emissions unit was reviewed for applicability to 40 CFR 63 Subpart DDDDD (boiler MACT). The unit is large, existing, burns liquid fuel, and is the only water-tube boiler onsite. All other boilers are fire-tube boilers and are not subject to the MACT. The only requirement from the MACT for this boiler is the initial notification.

Monitoring

The permit includes a requirement for monthly visual evaluations of each stack for compliance with the opacity limitation.

No periodic monitoring for the emissions limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 003 size = 32 million Btu/hr
Heating Value of residual oil = 150,000 Btu/gal (from AP42)
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Sulfur Content of both fuels = 2.5%

Emission Unit 003 hourly rate = (32,000,000 Btu/hr) / (150,000 Btu/gal) = 213.3 gal/hr

PM Emission Factors from AP-42 (Fuel Oil Combustion, 9/98):
Residual Fuel = ((8.34(1.12(S) + 0.37)) = (9.34S + 3.085) lb/1000 gallons = (9.34)(2.5) + 3.085
= 26.4 lb/1000 gallons
Distillate Fuel = 2.0 lb/1000 gallons

SO2 Emission Factors from AP-42 (Fuel Oil Combustion, 9/98):
Residual Fuel = 157S lb/1000 gallons = (157)(2.5) lb/1000 gallons = 392.5 lb/1000 gallons
Distillate Fuel = 142S lb/1000 gallons = (142)(2.5) lb/1000 gallons = 355.0 lb/1000 gallons

PM emissions for Emission Unit 003
(26.4 lb/1000 gallons) x (213.3 gal/hr) = ***5.6 lb/hr PM***
Title V permitted rate = ***12.8 lb/hr PM***
Title V permitted rate = ***0.4 lb/mmBtu***

SO2 emissions for Emission Units 003

((392.5 lb/1000 gallons) x (213.3 gal/hr)) = ***83.7 lb/hr***

Title V permitted rate = ***84.5 lb/hr***

Although there is not a great difference in the calculated rate and the permitted rate, it should be noted that the calculated rate is based on fuels having a sulfur content of 2.5%. In reality, the sulfur content of the fuels used at the site is much less; therefore, the actual emissions from the units will be much less than the calculated rate.

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for these units.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include the type of fuel combusted in the boilers, records of visual evaluations, visible emissions evaluations and any corrective action taken in regard to visible emissions, and DEQ-approved, pollutant-specific emission factors and equations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 007 - Stone Johnson 20 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR/NSPS permit issued October 16, 1997:

NSR/NSPS Condition 3: boiler shall consume no more than 150 million cubic feet of natural gas and 720,000 gallons of distillate oil per year.

NSR/NSPS Condition 5: emissions from the operation of the boiler shall not exceed the limits specified.

NSR/NSPS Condition 6: visible emissions from the boiler shall not exceed 10 percent opacity.

NSR/NSPS Condition 8: approved fuels for the boiler are natural gas and distillate oil.

NSR/NSPS Condition 9: sulfur content of the fuel shall not exceed 0.5% by weight; each shipment shall require a fuel certification.

NSR/NSPS Condition 10: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

The following Code of Federal Regulations has been determined to be applicable:

40 CFR part 60 subpart Dc - Small Industrial-Commercial-Institutional Steam Generating Units

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 007 size = 20 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 150 mmcf of natural gas
= 720,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (20,000,000 Btu/hr) / (140,000 Btu/gal) = 142.9 gal/hr
Hourly rate when burning natural gas = (20,000,000 Btu/hr) / (1050 Btu/cf) = 19,048 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (142.9 gal/hr) = ***10.1 lbs/hr***
(0.6 lb/mmcf) x (19,048 cf/hr) = ***0.011 lbs/hr***
((142)(0.5) lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***25.6 tons/yr***
(0.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.04 tons/yr***
Combined annual = 25.6 tons/yr + 0.04 tons/yr = ***25.6 tons/yr***

Title V permitted rates = ***10.3 lbs/hr and 25.6 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (142.9 gal/hr) = ***2.9 lbs/hr***
(100 lb/mmcf) x (19,048 cf/hr) = ***1.9 lbs/hr***
(20 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***7.2 tons/yr***
(100 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***7.5 tons/yr***
Combined annual = 7.2 tons/yr + 7.5 tons/yr = ***14.7 tons/yr***

Title V permitted rates = ***2.9 lbs/hr and 17.7 tons/yr***

CO emissions

(5 lb/1000 gallons) x (142.9 gal/hr) = ***0.7 lbs/hr***
(84 lb/mmcf) x (19,048 cf/hr) = ***1.6 lbs/hr***
(5 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***1.8 tons/yr***
(84 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***6.3 tons/yr***
Combined annual = 1.8 tons/yr + 6.3 tons/yr = ***8.1 tons/yr***

Title V permitted rates = ***0.7 lbs/hr and 4.4 tons/yr***

It should be noted that the AP42 emission factors for natural gas were updated in July 1998; This update has affected the emissions calculated for CO. The emissions in the 1997 NSR/NSPS permit were calculated using the previous AP42 emission factors.

PM emissions

(2.0 lb/1000 gallons) x (142.9 gal/hr) = ***0.3 lbs/hr***
(7.6 lb/mmcf) x (19,048 cf/hr) = ***0.1 lbs/hr***
(2.0 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***0.7 tons/yr***
(7.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.6 tons/yr***
Combined annual = 0.7 tons/yr + 0.6 tons/yr = ***1.3 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

It should be noted that the AP42 emission factors for natural gas were updated in July 1998; This update has affected the emissions calculated for PM. The emissions in the 1997 NSR/NSPS permit were calculated using the previous AP42 emission factors.

PM10 emissions

(1.0 lb/1000 gallons) x (142.9 gal/hr) = ***0.1 lbs/hr***
(7.6 lb/mmcf) x (19,048 cf/hr) = ***0.1 lbs/hr***
(1.0 lb/1000 gallons) x (720,000 gallons/yr) / (2000 lb/ton) = ***0.4 tons/yr***
(7.6 lb/mmcf) x (150 mmcf/yr) / (2000 lb/ton) = ***0.6 tons/yr***
Combined annual = 0.4 tons/yr + 0.6 tons/yr = ***1.0 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for these units.

Recordkeeping and Reporting

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include the fuel throughputs, fuel supplier certifications, records of visual evaluations and visible emissions evaluations conducted, any corrective action taken for visible emissions, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records. The permit also requires the submission of fuel quality reports in accordance with 40 CFR part 60 subpart Dc.

**EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 008 -
York Shipley 12 million Btu/hr Boiler**

Limitations

The following limitations are derived from the NSR permit issued December 16, 1981:

NSR Condition 2: boiler shall consume no more than 72,000 gallons of distillate oil per year.
NSR Condition 3: Emissions from the operation of the boiler shall not exceed the limits specified.
NSR Condition 5: approved fuel is distillate oil.

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources
9 VAC 5-50-80 Standard for Visible Emissions for New Sources
9 VAC 5-40-900 Existing Source Standard for Particulate Matter

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the emission limits will be exceeded:

Emission Unit Size = 12 mmBtu/hr
Heating Value of Distillate Fuel = 140,000 Btu/gal (from AP42)
Sulfur Content of Distillate Fuel = 0.5%

Emission Unit hourly rate = (12,000,000 Btu/hr) / (140,000 Btu/gal) = 85.7 gal/hr

Emission Factors from AP42 (Fuel Oil Combustion, 9/98):
PM for distillate fuel = 2.0 lb/1000 gallons
SO2 for distillate fuel = 142S lb/1000 gallons = (142)(0.5) lb/1000 gallons = 71.0 lb/1000 gallons

PM emissions
(2.0 lb/1000 gallons) x (85.7 gallons/hr) = ***0.17 lbs/hr***
Title V permitted rate = ***7.0 lbs/hr***

SO2 emissions
(71.0 lb/1000 gallons) x (85.7 gallons/hr) = ***6.0 lbs/hr***
(71.0 lb/1000 gallons) x (72,000 gallons/yr) / (2000 lbs/ton) = ***2.6 tons/yr***
Title V permitted rate = ***6.0 lbs/hr and 3.0 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for this unit.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughput, records of visual evaluations, visible emissions evaluations and any corrective action taken in regard to visible emissions, and DEQ-approved, pollutant-specific emission factors and equations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 009 - Stone Johnson 31.5 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR permit issued May 7, 2001:

NSR Condition 3: approved fuels for the boiler are distillate oil and natural gas.

NSR Condition 4: boiler shall consume no more than 330,000 gallons of distillate oil and 275 x 10^6 cubic feet of natural gas per year.

NSR Condition 5: sulfur content of the fuel shall not exceed 0.5% by weight per shipment.

NSR Condition 6: permittee shall obtain a fuel certification with each shipment of fuel.

NSR Condition 7: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

NSR Condition 8: emissions from the operation of the boiler shall not exceed the limits specified.

NSR Condition 9: visible emissions from the boiler shall not exceed 20 percent opacity.

NSR Condition 15: the permittee shall reduce operation or shut down the facility upon request of DEQ. *(This requirement has been included in the Facility-Wide Conditions)*

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation. Additionally, Condition 11 of the NSR permit issued May 7, 2001 requires that the boiler be constructed so as to allow emissions testing at any time, if requested.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 009 size = 31.5 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 275 mmcf of natural gas and 330,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (31,500,000 Btu/hr) / (140,000 Btu/gal) = 225.0 gal/hr
Hourly rate when burning natural gas = (31,500,000 Btu/hr) / (1050 Btu/cf) = 30,000 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (225.0 gal/hr) = ***16.0 lbs/hr***
(0.6 lb/mmcf) x (30,000 cf/hr) = ***0.018 lbs/hr***
((142)(0.5) lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***11.7 tons/yr***
(0.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***0.08 tons/yr***
Combined annual = 11.7 tons/yr + 0.08 tons/yr = ***11.8 tons/yr***

Title V permitted rates = ***16.2 lbs/hr and 11.8 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (225.0 gal/hr) = ***4.5 lbs/hr***
(100 lb/mmcf) x (30,000 cf/hr) = ***3.0 lbs/hr***
(20 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***3.3 tons/yr***
(100 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***13.8 tons/yr***
Combined annual = 3.3 tons/yr + 13.8 tons/yr = ***17.1 tons/yr***

Title V permitted rates = ***4.6 lbs/hr and 17.1 tons/yr***

CO emissions

(5 lb/1000 gallons) x (225.0 gal/hr) = ***1.1 lbs/hr***
(84 lb/mmcf) x (30,000 cf/hr) = ***2.5 lbs/hr***
(5 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.8 tons/yr***
(84 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***11.6 tons/yr***
Combined annual = 0.8 tons/yr + 11.6 tons/yr = ***12.4 tons/yr***

Title V permitted rates = ***2.6 lbs/hr and 12.4 tons/yr***

PM emissions

(2.0 lb/1000 gallons) x (225.0 gal/hr) = ***0.5 lbs/hr***
(7.6 lb/mmcf) x (30,000 cf/hr) = ***0.2 lbs/hr***
(2.0 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.3 tons/yr***
(7.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***1.0 tons/yr***
Combined annual = 0.3 tons/yr + 1.0 tons/yr = ***1.3 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.4 tons/yr***

PM10 emissions

(1.0 lb/1000 gallons) x (225.0 gal/hr) = ***0.2 lbs/hr***
(7.6 lb/mmcf) x (30,000 cf/hr) = ***0.2 lbs/hr***
(1.0 lb/1000 gallons) x (330,000 gallons/yr) / (2000 lb/ton) = ***0.2 tons/yr***
(7.6 lb/mmcf) x (275 mmcf/yr) / (2000 lb/ton) = ***1.0 tons/yr***
Combined annual = 0.2 tons/yr + 1.0 tons/yr = ***1.2 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity monitoring has been required

for this unit.

Recordkeeping

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughputs, fuel supplier certifications, records of required boiler operator training, records of visual evaluations, visible emissions evaluations and any corrective action taken with regard to visible emissions, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 010 - Cleaver Brooks 33.4 million Btu/hr Boiler

Limitations

The following limitations are derived from the NSR permit issued January 6, 2000:

NSR Condition 3: approved fuels for the boiler are natural gas and distillate oil.

NSR Condition 4: boiler shall consume no more than 600,000 gallons of distillate oil and 241.2 x 10^6 cubic feet of natural gas per year

NSR Condition 5: sulfur content of the fuel shall not exceed 0.5% by weight per shipment.

NSR Condition 6: permittee shall obtain a fuel certification with each shipment of fuel.

NSR Condition 7: boiler emissions shall be controlled by proper operation and maintenance; boiler operators shall be trained in the proper operation of the equipment.

NSR Condition 8: emissions from the operation of the boiler shall not exceed the limits specified.

NSR Condition 9: visible emissions from the boiler shall not exceed 10 percent opacity.

NSR Condition 18: the permittee shall reduce operation or shut down the facility upon request of DEQ. *(This requirement has been included in the Facility-Wide Conditions)*

NSR Condition 19: the permittee shall minimize the duration and frequency of excess emissions by taking listed measures.

The following Virginia Administrative Code has been determined to be applicable:

9 VAC 5-50-20 Compliance for New Sources

Monitoring

The permit includes a requirement for monthly visual evaluations of the boiler stack for compliance with the opacity limitation. Additionally, Condition 13 of the NSR permit issued January 6, 2000 requires that the boiler be constructed so as to allow emissions testing at any time, if requested.

No periodic monitoring for the emission limits for criteria pollutants is required in the permit. The following demonstration is provided to show that there is not a great likelihood that the Title V emission limits will be exceeded:

Emission Unit 010 size = 33.4 million Btu/hr
Heating Value of distillate oil = 140,000 Btu/gal (from AP42)
Heating Value of natural gas = 1050 Btu/cf
Sulfur Content of distillate oil = 0.5%
Annual throughput limitations = 241.2 mmcf of natural gas and 600,000 gallons of distillate fuel

Hourly rate when burning distillate oil = (33,400,000 Btu/hr) / (140,000 Btu/gal) = 238.6 gal/hr
Hourly rate when burning natural gas = (33,400,000 Btu/hr) / (1050 Btu/cf) = 31,810 cf/hr

Fuel Oil Combustion emission factors from AP42 (Fuel Oil Combustion, 9/98)

SO2	142S lb/1000 gallons
NOx	20 lb/1000 gallons
CO	5 lb/1000 gallons
PM	2.0 lb/1000 gallons
PM10	1.0 lb/1000 gallons

Natural Gas Combustion emission factors from AP42 (Natural Gas Combustion, 7/98)

SO2	0.6 lb/mmcf
NOx	100 lb/mmcf
CO	84 lb/mmcf
PM	7.6 lb/mmcf
PM10	7.6 lb/mmcf

SO2 emissions

((142)(0.5) lb/1000 gallons) x (238.6 gal/hr) = ***16.9 lbs/hr***
(0.6 lb/mmcf) x (31,810 cf/hr) = ***0.019 lbs/hr***
((142)(0.5) lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***21.3 tons/yr***
(0.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.07 tons/yr***
Combined annual = 21.3 tons/yr + 0.07 tons/yr = ***21.4 tons/yr***

Title V permitted rates = ***17.0 lbs/hr and 21.4 tons/yr***

NOx emissions

(20 lb/1000 gallons) x (238.6 gal/hr) = ***4.8 lbs/hr***
(100 lb/mmcf) x (31,810 cf/hr) = ***3.2 lbs/hr***
(20 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***6.0 tons/yr***
(100 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***12.1 tons/yr***
Combined annual = 6.0 tons/yr + 12.1 tons/yr = ***18.1 tons/yr***

Title V permitted rates = ***4.8 lbs/hr and 18.1 tons/yr***

CO emissions

(5 lb/1000 gallons) x (238.6 gal/hr) = ***1.2 lbs/hr***
(84 lb/mmcf) x (31,810 cf/hr) = ***2.7 lbs/hr***
(5 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***1.5 tons/yr***
(84 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***10.1 tons/yr***
Combined annual = 1.5 tons/yr + 10.1 tons/yr = ***11.6 tons/yr***

Title V permitted rates = ***2.8 lbs/hr and 11.6 tons/yr***

PM emissions

(2.0 lb/1000 gallons) x (238.6 gal/hr) = ***0.5 lbs/hr***
(7.6 lb/mmcf) x (31,810 cf/hr) = ***0.2 lbs/hr***
(2.0 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***0.6 tons/yr***
(7.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.9 tons/yr***
Combined annual = 0.6 tons/yr + 0.9 tons/yr = ***1.5 tons/yr***

Title V permitted rates = ***0.5 lbs/hr and 1.5 tons/yr***

PM10 emissions

(1.0 lb/1000 gallons) x (238.6 gal/hr) = ***0.2 lbs/hr***
(7.6 lb/mmcf) x (31,810 cf/hr) = ***0.2 lbs/hr***
(1.0 lb/1000 gallons) x (600,000 gallons/yr) / (2000 lb/ton) = ***0.3 tons/yr***
(7.6 lb/mmcf) x (241.2 mmcf/yr) / (2000 lb/ton) = ***0.9 tons/yr***
Combined annual = 0.3 tons/yr + 0.9 tons/yr = ***1.2 tons/yr***

Title V permitted rates = ***0.3 lbs/hr and 1.2 tons/yr***

Based on the demonstration, it appears there is not a great likelihood that the Title V emission limits will be exceeded; therefore, no additional periodic monitoring other than opacity has been required for this unit.

Recordkeeping and Reporting

The permit includes requirements for maintaining records of emission data and operating parameters necessary to demonstrate compliance with the permit. These records include fuel throughputs, fuel supplier certifications, records of boiler operator training, records of visual evaluations, visible emissions evaluations and any corrective action taken, DEQ-approved, pollutant-specific emission factors and equations, boiler operator training records, and boiler operational maintenance records.

Condition 12 of the NSR permit issued January 6, 2000 requires the submission of semi-annual fuel quality reports.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 006 - Surface Coating - Open Air Painting

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions
9 VAC 5-60-100	National Emission Standards for Hazardous Air Pollutants for Source Categories - Designated Emission Standards

The following Code of Federal Regulations has been determined to be applicable:

40 CFR part 63 subpart II - Shipbuilding and Ship Repair (Surface Coating)

Monitoring, Recordkeeping and Reporting

Although there is an opacity standard applicable, there is no corresponding monitoring, recordkeeping and reporting requirement for it. In addition, 40 CFR part 63 subpart II does not specify an opacity requirement. There is not a great likelihood of opacity from open air coating operations. The open air painting operations are fugitive operations, and Method 9 visible emissions standard is not applicable for fugitive emissions.

The permittee is required to comply with the recordkeeping and reporting requirements contained in 40 CFR 63.788 for each compliance option chosen. Based on EPA guidance, compliance with the MACT satisfies compliance with periodic monitoring. No other monitoring requirements have been specified.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 020 - Abrasive Blasting

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions

Monitoring and Recordkeeping

Although there is an opacity standard applicable, there is no corresponding monitoring, recordkeeping and reporting requirement for it. The abrasive blasting operations are fugitive operations, and Method 9 visible emissions standard is not applicable for fugitive emissions.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 022 - Carpenter Shop (Sawmill and Woodworking)

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions
9 VAC 5-40-90	Existing Source Standard for Fugitive Dust/Emissions
9 VAC 5-40-2270	Existing Source Standard for Particulate Matter (Woodworking Operations)

Monitoring

The permit includes a requirement for monthly visual evaluations of the carpenter shop exhausts for compliance with the opacity limitation.

No periodic monitoring for the particulate matter emission limitation is required in the permit, based on the following demonstration:

Emission factor from AP42 Appendix B.1 = 2.3 kg particulate/hr of cyclone operation
Exit gas parameter = 15,000 cfm (from January 1998 permit application)
1 kg = 2.205 lb
16 ounces = l lb
1 grain = 0.002 ounces
1 hour = 60 minutes

(2.3 kg/hr) x (2.205 lb/kg) x (16 oz/lb) x (1 grain/0.002 oz) x (1 min/15,000 cf) x (1 hour/60 min)
= ***0.045 grain/cf***

Title V permitted rate = 0.05 grain/cf

There is not a great likelihood that the permitted limit will be exceeded.

Recordkeeping

The permittee is required to maintain records of visible emission checks, corrective measures taken for visible emissions, visible emission evaluations, and any DEQ-approved, pollutant-specific emission factors used to show compliance with the permit.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 024 - Shot Blast Cabinet

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions

Monitoring and Recordkeeping

The permit includes a requirement for monthly visual evaluations of the shot blast cabinet exhaust for compliance with the opacity limitation.

The permittee is required to maintain records of visible emission checks, corrective measures taken for visible emissions, and visible emission evaluations.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Unit 023 – Loading Rack

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-40-20	Compliance for Existing Sources
9 VAC 5-40-80	Existing Source Standard for Visible Emissions

Monitoring and Recordkeeping

Although there is an opacity standard applicable, there is no corresponding monitoring, recordkeeping and reporting requirement for it. The loading rack emissions are VOC emissions, and no opacity is expected.

EMISSION UNIT APPLICABLE REQUIREMENTS - Emission Units TEG1, ODEG2, and FEG2 – Emergency Generators

Limitations

The following Virginia Administrative Codes have been determined to be applicable:

9 VAC 5-50-20	Compliance for Existing Sources
9 VAC 5-50-80	Existing Source Standard for Visible Emissions

Monitoring and Recordkeeping

Although there is an opacity standard applicable, there is no corresponding monitoring, recordkeeping and reporting requirement for it. This is due to the intermittent operational nature of the units, and because the opacity is not expected to exceed 20%.

FACILITY-WIDE CONDITIONS
The facility-wide conditions include monitoring for visible emissions for all non-fugitive sources at the site.

GENERAL CONDITIONS
The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110 that apply to all Federal-operating permitted sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions.

Comments on General Conditions

B. Permit Expiration
This condition refers to the Board taking action on a permit application. The Board is the State Air Pollution Control Board. The authority to take action on permit application(s) has been delegated to the Regions as allowed by §2.1-20.01:2 and §10.1-1185 of the *Code of Virginia,* and the "Department of Environmental Quality Agency Policy Statement No. 3-2006".

F. Failure/Malfunction Reporting
Section 9 VAC 5-20-180 requires malfunction and excess emission reporting within four hours of discovery. Section 9 VAC 5-80-250 of the Title V regulations also requires malfunction reporting; however, reporting is required within two days. Section 9 VAC 5-20-180 is from the general regulations. All affected facilities are subject to section 9 VAC 5-20-180 including Title V facilities. Section 9 VAC 5-80-250 is from the Title V regulations. Title V facilities are subject to both sections. A facility may make a single report that meets the requirements of 9 VAC 5-20-180 and 9 VAC 5-80-250. The report must be made within four daytime business hours of discovery of the malfunction.

U. Malfunction as an Affirmative Defense
The regulations contain two reporting requirements for malfunctions that coincide. The reporting requirements are listed in sections 9 VAC 5-80-250 and 9 VAC 5-20-180. The malfunction requirements are listed in General Condition U and General Condition F. For further explanation see the comments on general condition F.

Y. Asbestos Requirements
The Virginia Department of Labor and Industry under Section 40.1-51.20 of the Code of Virginia also holds authority to enforce 40 CFR 61 Subpart M, National Emission Standards for Asbestos.

STATE-ONLY APPLICABLE REQUIREMENTS
The following Virginia Administrative Codes have specific requirements only enforceable by the State and have been identified as applicable by the applicant:

9 VAC 5-40-140	Existing Source Standard for Odor
9 VAC 5-40-180	Existing Source Standard for Toxic Pollutants
9 VAC 5-50-140	New and Modified Source Standard for Odorous Emissions
9 VAC 5-50-180	New and Modified Source Standard for Toxic Pollutants

INAPPLICABLE REQUIREMENTS

The startup, shut down, and malfunction opacity exclusion listed in 9 VAC 5-40-20 A 3 cannot be included in any Title V permit. This portion of the regulation is not part of the federally approved state implementation plan. The opacity standard applies to existing sources at all times including startup, shutdown, and malfunction. Opacity exceedances during malfunction can be affirmatively defended provided all requirements of the affirmative defense section of this permit are met. Opacity exceedances during startup and shut down will be reviewed with enforcement discretion using the requirements of 9 VAC 5-40-20 E, which state that "At all times, including periods of startup, shutdown, soot blowing and malfunction, owners shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with air pollution control practices for minimizing emissions."

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110.

Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation (9 VAC)	Pollutant(s) Emitted (9 VAC 5-80-720 B)	Rated Capacity (9 VAC 5-80-720 C)
SH2	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	9.07 million Btu/hr
PS1	Natural gas-fired cutting table	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	1.0 million Btu/hr
PS2	Natural gas-fired cutting table	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	1.0 million Btu/hr
T6	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	25,000 gallons
T7	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	25,000 gallons
T8	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
T24	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
T25	Recovered oil & water mix holding tank	5-80-720 B.2.	VOC	50,000 gallons
Bldg. 101	Natural gas-fired boiler	5-80-720 C.2.a.	PM10, SO2, NOx, CO, VOC	0.225 million Btu/hr
T32	Aboveground gasoline tank	5-80-720 B.2.	VOC	3,000 gallons
T33	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	3,000 gallons
T22	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	1,000 gallons
T37	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	1,000 gallons
T29	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	10,000 gallons
T11	Aboveground used oil tank	5-80-720 B.2.	VOC	10,000 gallons
T12	Aboveground used oil tank	5-80-720 B.2.	VOC	10,000 gallons
T13	Aboveground #6 fuel oil tank	5-80-720 B.2.	VOC	10,000 gallons
T14	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	5,900 gallons

T50	Aboveground #2 diesel tank	5-80-720 B.2.	VOC	1,000 gallons
ODEG1	Old Dominion Emergency Diesel Generator #1	5-80-720 C.4.b.	PM10, SO2, NOx, CO, VOC	300 kw
FEG1	Facility Emergency Diesel Generator #1	5-80-720 C.4.b.	PM10, SO2, NOx, CO, VOC	150 kw
071	Heat Treatment Furnace, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr
072	Heat Treatment Furnace, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr
073	Heat Treatment Furnace, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr
074	Heat Treatment Furnace, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr
075	Annealing Oven, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr
076	Annealing Oven, No. 1 or 2 Fuel Oil	5-80-720 B	PM10, SO2, NOx, CO, VOC	1.5 mmBtu/hr

The citation criteria for insignificant activities are as follows:

9 VAC 5-80-720 A - Listed Insignificant Activity, Not Included in Permit Application
9 VAC 5-80-720 B - Insignificant due to emission levels
9 VAC 5-80-720 C - Insignificant due to size or production rate

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the Virginian-Pilot from August 7, 2007 to September 6, 2007.